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ABSTRACT

A study compared the way in which subjects belonging to four different age groups produced written recall and summary responses after being presented with a narrative story. A seventh-grade-level, 500-word story that contained 78 idea units was presented to two groups of adolescents (mean ages, 14.14 years and 17.55 years) and two groups of adults (mean ages, 48.35 years and 67.12 years). Half the subjects in each age group were instructed to read the story in a way that would enable them to answer questions about its content, and the other half were instructed to read it for pleasure, in a relaxed and non-goal oriented manner. Reading times were recorded with a digital stopwatch. In general, the adolescents recalled and summarized the story's explicitly given propositional content, whereas many of the mature adults recalled and summarized the story's implicitly psychological and metaphoric meanings as well. This suggests that there may be an age-related shift in narrative processing from an earlier style in which attention is primarily focused on the surface-level details of a narrative's propositional content to a later-developing style in which the deeper psychological and metaphoric meanings in a narrative also become the focus of attention. The study further suggests that the older adults' more interpretive processing style may represent some sort of adaptive mechanism that is used to compensate for the memory deficits that some older adults may experience. (MN)

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# Styles of Narrative Processing: A Qualitative Shift from Adolescence to Mature Adulthood[1]

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Poster presented at the Annual Meeting of the American Psychological Association, New York, N.Y., August, 1987.

[1] The data presented here are part of a doctoral dissertation completed at Wayne State University. I wish to thank Gisela Labouvie-Vief who served as advisor for the dissertation project.

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# ABSTRACT

Four age-groups of 20 subjects each (mean ages = 14.14 years, 17.55 years, 48.35 years, and 67.12 years) produced written recall and summary responses following presentation of a story. Individual subject protocols were scored for their meaning-preserving (literal), meaning-extending (inferential), and interpretive (metaphoric) content. Age-group differences were observed in the quality of the protocols. In general, the adolescents recalled and summarized the story's explicitly given propositional content, whereas many of the mature adults recalled and summarized the story's implicit psycholgical and metaphoric meanings as well. The results suggest that there may be an age-related shift in narrative processing from an earlier style in which attention is primarily focused on the 'surface-level' details of a narrative's propositional content to a later developing style in which the 'deeper' psychological and metaphoric meanings in narrative are also the focus of attention.

# INTRODUCTION

Most research on text-processing in adulthood has focused on age-group differences in the comprehension and recall of a text's propositional representation of meaning (for review see Hultsch & Dixon, 1984). This research strategy is based on the assumption that a text's explicitly given propositional content is what largely determines the meaning that is derived from a text and thus what is remembered by the reader. Although this assumption may not pose significant problems for the study of processing of certain forms of text, such as a scientific article, it may be problematic when the processing of narrative text is the focus of age comparative analysis. This is because narrative forms of text (i.e., a story) can be conceptualized as comprising multiple levels of meaning, some of which extend beyond the propositional text base. Comprehension of narrative thus involves the simultaneous construction of these different levels of meaning (see Bruner, 1986), and if the relative salience of these levels of meaning should vary with life stage then the same story may be encoded and remembered in a qualitatively different way by individuals of different age groups (see Adams & Labouvie-Vief, 1986; Labouvie-Vief, 1986).

At one level, for example, a narrative comprises a linear sequence of actions and events. (Bruner, 1986, refers to this level as the 'landscape of action' in a story). Meaning at this level is, for the most part, coded in a story's propositional content and structure, and thus comprehension and recall at this level is

highly determined by the story's text base. When individuals who primarily encode this level of meaning are asked to recall a story, the goal is to reproduce the story's action-event text-base. At another level, narrative deals with the motivations, intentions, and psychological reactions of the characters involved in a story's action-event sequence. (Bruner refers to this level as a story's 'landscape of consciousness'.) Much of the story's 'meaning' at this level is left underdetermined and is thus open to interpretation by the reader (Bruner, 1986). It is here that a reader's stored knowledge, expectations, psychological perspective, and affect can significantly contribute to the encoding process and thus to what is remembered. Finally, at a third level, a story may implicitly embody one or more generic life themes or messages such as a moral or lesson. At this level, the story is understood figuratively rather than literally, that is, as a metaphor about life in general.

Because the role of experience and stored knowledge in information-processing is known to increase in adulthood (Labouvie-Vief, 1986; Perlmutter, 1986; Rybash, Hoyer, & Roodin, 1986), the *psychological* and *metaphoric* representations of meaning in narrative text are likely to be more salient to older than to younger readers, who are probably most concerned with processing the strictly *propositional* meaning. Adulthood may thus bring a shift from an earlier processing style in which attention is primarily focused on the 'surface-level' details of a narrative's propositional content to a later developing style in which the 'deeper' levels of meaning in

narrative are also the focus of processing attention -- if not the primary focus of attention. With few exceptions (see Adams, Labouvie-Vief, Hobart, & Dorosz, 1986; Labouvie-Vief, Schell, & Weaverdyck, 1983), research on narrative-memory in adulthood has not examined the possibility of such age-related changes in styles of processing.

The present study was designed to further examine stylistic differences in the processing outcomes (i.e., the recall and summary protocols) of subjects representing four life stages: early adolescence, late adolescence, midlife adulthood, and later adulthood. In this study, the focus was on age-group differences in the processing of the different levels of narrative meaning. After reading a short story, subjects were asked to retell and then to summarize the story. Subject protocols were scored for their propositional content as well as for 'deeper' levels of meaning. Age-group differences were expected in the qualitative content of the protocols. Specifically, the adolescent groups were expected to produce responses that were highly tied to the story's explicitly given propositional content (i.e., the story's text-base), while the midlife and older adult groups were expected to produce responses which transformed the story's text-base and included more of the story's implicit psychological and metaphoric meanings.

# MATERIALS AND PROCEDURES

The narrative used in this study was a modified version of a Sufi teaching tale (Shah, 1967). This type of story was selected because, on one hand, it was a relatively simple linear sequence of actions and events and, on the other hand, it was rich in implicit psychological and metaphoric meanings. This type of story thus maximized the potential salience of several levels of meaning in narrative.

The story's text was 518 words long and was assessed at the seventh grade reading level (Fry, 1968). The text-base comprised 78 idea units. For scoring purposes, the action-event text-base units were differentiated from the story's psychological text-base, or those units which contained information about the characters' states of awareness and knowledge. A total of 50 of the story's 78 units (or 65%) were identified as action-event units and 26 (or 35%) were identified as the psychological text-base.

Two groups of adolescent (mean ages = 14.14 and 17.55) and two groups of adult (mean ages = 48.35 and 67.12) subjects were presented the story to read (See Table 1 for descriptive data). In an attempt to manipulate approach to the reading task, reading instructional set was varied in this study. Half of the subjects in each age group received instructions designed to promote an 'efferent' reading and half received instructions designed to promote an 'aesthetic' reading. In the efferent reading condition subjects were told to read the story in a way

that would enable them to answer some questions about it afterward; they were instructed to focus their attention on the information as it was stated in the text. Subjects in the aesthetic reading condition were instructed to read the story for pleasure, in a relaxed non-goal oriented manner. Additionally, they were told to focus their attention on any feelings, images, or associations that might come to mind as they were reading. Reading time was recorded with a digital stopwatch.

Following story presentation, subjects were first asked to rate the story on a scale from 1 (low) to 10 (high) for its comprehensibility, imagery, personal meaningfulness, and familarity. They then completed a timed 'filler task' for a period of six minutes. At recall, subjects were asked to complete two response tasks: They were first asked to write down as much of the story as they could remember in as much detail as possible (Retelling condition); they were then asked to write a summary of the story (Summary condition). The order of response instructions was held constant across all subjects.

# PROTOCOL CONTENT ANALYSIS

Subject retelling and summary protocols were segmented into individual idea units, and each unit was then classified into one of six response categories. The six response categories were generated by taking into account both the form and the content of a response unit. Two kinds of content were differentiated: information from the story's action-event sequence and information related to the story's psychological and metaphoric meanings. The six scoring categories were:

| CATEGORY | DEFINITION |
|---|---|
| (1) Text-Base-Action-Event | Matches the action-event information in story's text-base. |
| (2) Text-Base-Psychological | Matches the psychological information in story's text-base. |
| (3) Transformation-Action-Event | Transforms and extends the story's line of action (e.g., pragmatic inferences). |
| (4) Transformation-Psychological | Transforms and extends the story's psychological layer of information (e.g., psychological inferences). |

(5) Summarization — Condenses a number of text-base units into a single informationally-dense unit.

(6) Interpretation — Introduces meaning that extends beyond the overt topic domain of the story; often conveys metaphoric and symbolic meaning of the story.

# PRELIMINARY ANALYSES

A set of preliminary analyses of age-group differences for the reading time and story rating variables was conducted. Table 2 presents the mean values for each of these variables by age group. There were no significant age differences. These variables were thus ruled out as contributors to potential age differences in processing style and outcome.

A preliminary 4 (Age Group) x 2 (Reading Condition: Efferent, Aesthetic) x 2 (Response Condition: Retelling, Summary) multivariate analysis of variance with repeated measures on the last factor was conducted with the six response categories as the dependent variables (12 variables total, 6 for each response condition). To correct for skewedness, log transformations were applied to all but the two text-base action-event distributions which were normal. The MANOVA yielded significant multivariate effects for age group, response condition and the age x response condition interaction. The multivariate effect for reading condition was nonsignificant as were all other interactions. Reading condition was thus dropped from further analysis.

Six separate 4 (Age Group) x 2 (Response Condition) repeated measures ANOVAS produced the following age-group patterns for the retelling and summary protocols respectively. When age interacted with response condition (this occurred for the *psychological transformation* and *interpretation* variables only), simple effects tests were conducted.

# SUMMARY OF RESULTS

**RETELLINGS**: Figure 1 presents the mean values for each response category plotted across the four age groups. There were no significant age-group differences in the amount of *text-base action-event* information contained in the protocols. Thus, recall of the story's line of action was not affected by age. The age groups also did not differ in the number of *action-event transformations* produced in the retellings. That is, the age groups did not differ in the tendency to change or transform the story's line of action. Age differences did emerge for the psychological level of meaning. There was a significant drop from the late adolescent through the older adult group in the number of *text-base psychological* units of meaning retold, $F(1,76)=9.96$, $p < .01$. This drop was accompanied, however, by age-related differences in the tendency to transform that level: There was a significant increase at the midlife group in the number of *psychological transformations* (e.g., psychological inferences) included in the retellings, which dropped off for the older adult group, $F(1,76)=6.23$, $p < .001$. This age-related quadratic trend remained significant ($p < .001$) even when the vocabulary scores (which significantly correlated with both age, $r=.65$, and the number of psychological transformations produced, $r=.26$) were controlled for statistically. Finally, there was a significant age effect for the number of summarizations present in the protocols, $F(3,76)=5.73$, $p < .001$, with the number increasing from early to later adolescence and then stabilizing thereafter.

**SUMMARIES**: Figure 2 presents the mean values for each response category plotted across age group. As would be expected, the summaries were shorter than the retellings. This was due to significant drops in the number of text-base and transformation units (both action-event and psychological). Although the number of *text-base action-event* units present in the summary protocols decreased for the two adult groups, this apparent age effect did not reach statistical significance. In addition, there were no age-group differences in the number of *transformations* present, either *action-event* or *psychological*. There was, however, a significant drop from the late adolescent to the older adult group in the number of *text-base psychological* units included in a summary, $F(1,76)=9.96$, $p < .01$. This drop was accompanied by an age-related linear trend in the number of *interpretive* (e.g., metaphoric) response units included in the summaries, $F(1,76)=16.17$, $p < .001$, supporting an increasing interpretive summary style associated with age. The cubic trend component for the interpretation variable was also significant, $F(1,76)=14.69$, $p < .001$, as the midlife group produced more interpretive units in their summaries than did the older adult group. This age-related trend remained significant ($p < .001$) even when the vocabularly scores (which significantly correlated with the number of interpretations produced in the summaries, $r=.25$) were controlled for statistically. As in the retelling protocols, the number of summarizations present in the summary protocols increased from early to later adolescence and then stabilized therafter.

# CONCLUSIONS

The observed qualitative differences in the recall and summary styles of the adolescents and mature adults in this study supports the hypothesized age-related shift in the processing of different levels of meaning in narrative. In general, the adolescent subjects appeared to encode the story primarily in terms of its explicitly given propositional content. For the mature adults, however, the story's 'deeper' psychological and metaphoric meanings were apparently encoded as well. Age-related differences in verbal ability did not 'explain away' the observed differences in processing style.

These data may be interpreted in at least two ways. From a deficit view of adult cognition -- in which processing resources are assumed to become increasingly less efficient with age (e.g., Burke & Light, 1981; Craik & Byrd, 1982) -- a shift during adulthood toward a more interpretive processing style may represent an adaptive compensatory mechanism. In contrast, from a more developmental view of adult cognition -- in which adulthood is characterized by adaptive re-organizations of the cognitive system (see Labouvie-Vief, 1986) -- an interpretive processing style may develop in midlife not as a compensation, but rather as an adaptive mechanism for connecting specific propositional content with a broader and richer knowledge base. For those older adults who do experience some memory deficits, aging may eventually bring a more exclusive reliance on this integrative-interpretive style.

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Table 1

**Descriptive Characteristics of the Four Age Groups**

| | Age Group | | | |
|---|---|---|---|---|
| Variable | 13-15 | 16-19 | 39-56 | 60-78 |
| Gender M/F | 20/20 | 20/20 | 20/20 | 20/20 |
| Mean Age | 14.14 | 17.55 | 48.35 | 67.12 |
| Mean SES[1] | 58.85 | 58.05 | 57.50 | 54.65 |
| Mean Educ | 7.90 | 11.35 | 16.70 | 15.95 |
| Mean Voc[2] | 19.75 | 26.63 | 31.60 | 33.00 |
| Health[3] | 100 | 100 | 100 | 100 |
| Vision[3] | 100 | 90 | 100 | 95 |
| Hearing[3] | 100 | 100 | 100 | 80 |

1 Based on Hollingshead's Four-Factor Index (1975). Values can range from a low of 8 to a high of 66.

2 Based on the Jastak and Jastak (1964) 20-item form of the WAIS Vocabulary Scale. A total of 40 points is possible.

3 Percent subjects with self-ratings of good or excellent on a scale with four values: excellent, good, fair, and poor.

Table 2

**Mean Story Ratings and Reading Time for Each Age Group**

| Rating Scale (1-10) | Age Group | | | |
|---|---|---|---|---|
| | 13-15 | 16-19 | 39-56 | 60-78 |
| Compre-hensibility | 8.40 | 7.55 | 8.25 | 8.35 |
| Imagery | 8.30 | 7.85 | 8.45 | 8.15 |
| Meaning-fulness | 5.35 | 6.45 | 6.55 | 6.90 |
| Familiarity | 6.05 | 5.85 | 6.00 | 6.65 |
| Reading Time in Seconds | 168.7 | 153.15 | 166.25 | 156.25 |

RECALL PROTOCOLS

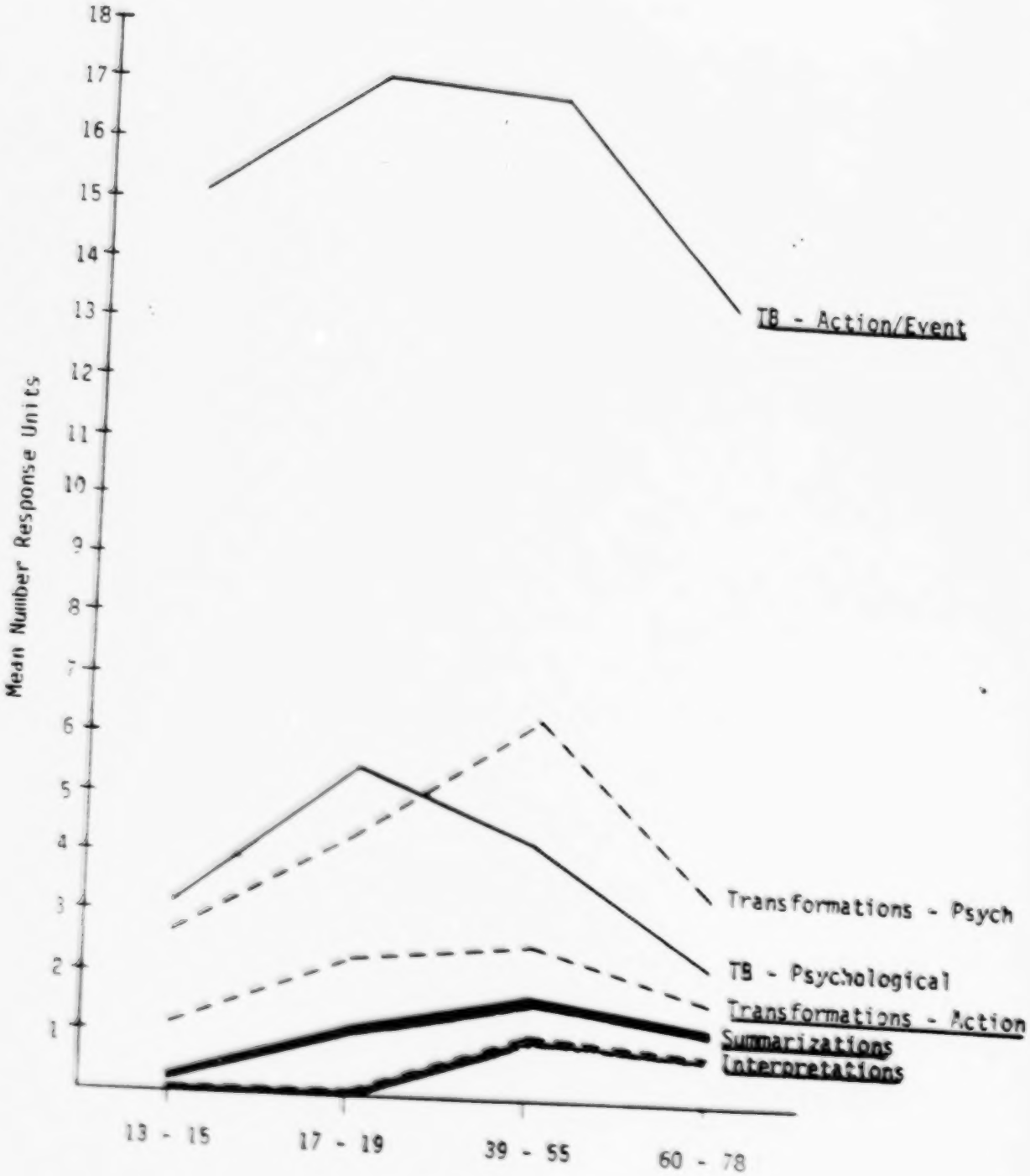


Figure 1

SUMMARY PROTOCOLS

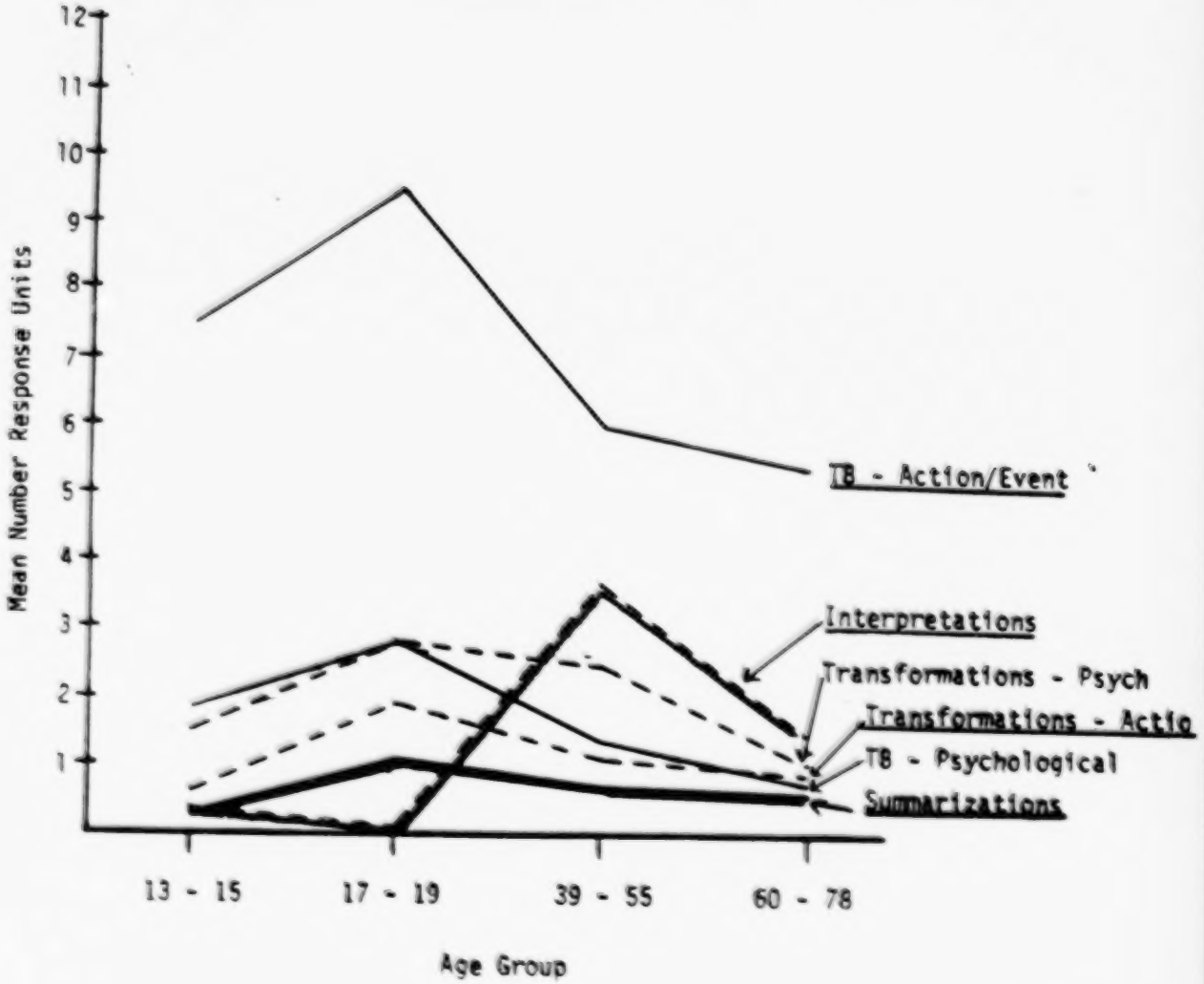


Figure 2

# EXAMPLE PROTOCOLS

**Narrative retelling style**: The adolescents in this study displayed a highly literal retelling style. There was little reorganization of the story's text-base in their protocols; in some, the dialogue was even recreated rather than described (see Protocol 1). In contrast to the adolescents' reproductive style, the midlife adults in this study tended to significantly transform the story' psychological layer (see Protocol 2). In many of the adult protocols, the story's focus of 'activity' is shifted away from the external line of action toward the internal landscape of consciousness of the characters. In Protocol 3, for example, this shift is quite pronounced. Not only does the main 'activity' of the retelling take place in the psychological processes of the characters, but the story's line of action is reorganized around the story's psychological theme (see Protocol 3). Although the older adults produced shorter retellings than the midlife adults, they displayed a similar style in which the story's action sequence was augmented with its deeper psychological and metaphoric meanings (see Protocols 4 and 5).

**Narrative summary style**: In general, the adolescents' summaries were abbreviated versions of their retellings. For these youth, story summarization apparently entailed the deletion of all but those text base units necessary to express the basic gist of the story's literal meaning (see Protocol 6). For many of the mature adults, however, it was not the narrative per se that was summarized, but rather it's implicit psychological and metaphoric meanings (see Protocol 7). Many older adults also displayed this interpretive summary style. Their responding tended, however, to be briefer than that of the midlife adults. This apparent predilection for brevity was nevertheless accompanied by the ability to succinctly express a deep meaning of the story (see Protocols 8 and 9).

PROTOCOL 1

Once upon a time there was a stream. The stream started in the mountains and made a long journey down. Then it came to a desert. It had passed many other barriers so it tried to pass the desert. When it did it was absorbed into the sand. Then a voice said, "You cannot pass through the desert. You must let the wind carry you over." The stream tried again and failed. The stream asked, "How can I go over the desert?" The voice replied, "The wind will absorb you up and go over the desert and then rain and the rain will form streams." The stream let the wind absorb him and the wind carried the stream over the desert. When it rained on the other side the stream continued but remembered what the voice had said.

(Adolescent Retelling)

PROTOCOL 2

Once upon a time a stream was attempting to reach the mountains. It was deterred, however, by the desert. Try as it did it could not cross without being absorbed by the desert.

A voice suddenly called out that the wind had successfully crossed the desert. The stream was provoked. Of course the wind could simply raise itself above the desert and cross with no trouble. The voice urged the stream to allow itself to be carried over the desert by the wind but the stream feared that its identity would be completely lost should it allow this. Again, the voice urged the stream on, saying that its identity could be reasserted in the form of a river once the mountains were reached. In any case, if the stream refused it would turn into a swamp at best.

At last, the stream agreed and happily found that by allowing the wind to carry it, raindrops formed, and in the end, the stream became a river.

(Midlife Adult Retelling)

PROTOCOL 3

The setting of the story is a stately mountain range with a bubbling stream trickling down to a sandy desert. The stream has great difficulty keeping its identity. It is immediately absorbed into the sandy ground, thus disappearing. The stream wants to keep its identity but is puzzled until a voice calls out with a suggested way to go across the desert yet be whole, or the 'same', once it's on the other side. The stream questions the possibility of 'vaporizing' -- it really wants to be sure it won't be lost. However, if the stream crossed the sand it will be lost -- so why not give the 'sky' a try. What is there to lose? The stream wants its identity and is granted that wish.

(Midlife Adult Retelling)

PROTOCOL 4

There was a stream whose progress was halted by a desert. In order to cross the desert and not become a swamp, the stream was told to allow itself to be carried into the wind and across the desert so that it might reform itself on the other side. This transformation was something the stream recalled that had happened to it previously. As an allegory the story reveals that we can re-capture our identity by allowing substantial changes to take place.

(Older Adult Retelling)

PROTOCOL 5

A stream was running towards a destination. He came to the desert and found that he couldn't go across because he was absorbed. A thought came to him of the way he could get across. He would be gathered up as moisture, be carried by the wind and come down on the other side of the desert as a stream again, which he was.

Often we are faced with what we think are insurmountable tasks, but if we think them through they can generally be achieved.

(Older Adult Retelling)

PROTOCOL 6

Once upon a time there was a stream. The stream made a journey and was stopped by the desert. When the stream tried to pass the desert it was absorbed by the sand. A voice said that the wind had to carry the stream over the desert. The stream doubted it but later agreed to let the wind carry him over. The wind carried the stream over and the stream never forgot what the voice said.

(Adolescent summary)

PROTOCOL 7

The story is about some entity or a person that had enjoyed good luck and fortune in their early formative years, later to be faced by a very difficult period where major changes in thoughts and deed had to be undertaken in order to insure survival. The Entity opted for change as an act of faith that the uncertain future offered the hope of immortality while resistance to change or adapt insured death.

(Midlife Adult Summary)

PROTOCOL 8

The essence of the story is that in order to accomplish one's goals, one sometimes has to sacrifice one's individuality and join forces with others moving in similar direction.

(Older Adult Summary)

PROTOCOL 9

Do not be afraid to venture out of your original and present form for you will continue to retain your true identity.

(Older Adult Summary)